IN THE SPECIFICATION:

Before Paragraph 1, please insert the following:

CROSS-REFERENCE

[0000.5] This non-provisional application claims benefit of and priority to German Application Number 103 11 168.9-23, filed March 12, 2003, the disclosure of which is hereby incorporated by reference herein.

BACKGROUND

[0001] The ~~invention~~ present disclosure relates to a centrifugal drum for a separator, which ~~preferably has~~ may have a vertical axis of rotation, ~~and~~ a drum bottom part and a drum cover which is fastened to the drum bottom part by ~~means of~~ a locking ring.

[0002] A centrifugal drum of the above-mentioned type is ~~know~~ known from German Patent Document DD 287 147. ~~Accordingly, a~~ A centering cone is constructed between the drum bottom part and the drum cover, which centering cone has the purpose of compensating the extensions of ~~the~~ elements during the rotation of the drum. It is also known from this document to arrange sealing rings between the drum bottom part and the drum cover. ~~(in this respect, also~~ Also see, for example, British Patent Document GB 765,034~~)~~.

[0003] International Patent Document WO 00/53327 replaces known locking rings having a screw thread by a band-type locking ring which is arranged in a sloped manner with respect to the axis of rotation or non-concentrically between the drum bottom part and the drum cover.

[0004] Concerning the state of the art, also see German Patent Documents DE 2 328 346 A_1 and DE 818 023 C, Swiss Patent Document CH 325207 and German Patent Document DE 196 09 353 C1 ~~are also mentioned~~.

Before Paragraph 5, please insert the following:

SUMMARY

[0005] ~~It is an object of the invention to~~ The present disclosure further develops a centrifugal drum of the above-mentioned type such that the drum cover can be centered at the drum bottom part by ~~means of simple~~ devices.

[0006] ~~The invention achieves this task by means of the object of Claim 1.~~The present disclosure relates to a centrifugal drum for a separator having a vertical axis of rotation. The centrifugal drum includes a drum bottom part and a drum cover fastened to the drum bottom part by a locking ring. A centering ring is arranged between the drum bottom part and the drum cover such that, while the centering ring is being pretensioned, it sealingly and centeringly braces the drum bottom part and the drum cover relative to one another.

[0007] ~~Accordingly, while being pretensioned (for example, deformed), a centering ring is arranged between the drum bottom part and the drum cover in such a manner that it braces the drum bottom part and the drum cover relative to one another in a sealing and centering manner.~~(Canceled)

[0008] As a result of ~~this measure~~ the use of the centering ring and its arrangement, a centering cone or a high-expenditure clamping between the drum cover and the drum bottom part, for the purpose of a centering, can be eliminated and ~~can be~~ replaced by ~~a cost-effective~~ the above-mentioned centering ring, ~~particularly~~ which may be made of an elastic material, such as rubber.

[0009] Simultaneously, a reliable sealing-off of the centrifugal drum is implemented in ~~the~~ an area between the drum bottom part and the drum cover. This also reduces the risk of corrosion, particularly in ~~the~~ an area of ~~the~~ a thread between ~~the~~ a locking ring and the centrifugal drum. Since no additional constructive measures are required for the centering on the drum bottom part, ~~the~~ a tension level in the drum bottom part is lowered by the larger wall thickness which can be implemented.

[00010] According to ~~a preferred variant~~ an embodiment of the present disclosure, the drum cover engages in the drum bottom part, and the centering ring is arranged between ~~the~~ an outer circumference of the drum cover and ~~the~~ an inner circumference of the drum bottom part, ~~; in which case, the~~ The centering ring is designed such that ~~the~~ a centering and sealing effect is maintained in ~~the~~ an operation of the separator up to the maximal rotational speed. As an alternative, embodiments are also conceivable in which the drum bottom part engages from below in the drum cover~~, although this type of construction is not very customary~~.

[00011] While being axially pretensioned or deformed, the centering ring is arranged, ~~particularly~~ possibly in an elastic manner, between the outer circumference of the drum

cover and the inner circumference of the drum bottom part in order to ~~implement~~ permit the centering and sealing effect in a simple manner.

[00012] An inner collar is ~~expediently~~ shaped to ~~the~~ an inner circumference of ~~the~~ an upper ring section of the drum bottom part, on which collar a correspondingly complementarily shaped collar rests which is situated on ~~the~~ an outer circumference of a lower ring section of the drum cover. In addition, when the axis of rotation is vertical, a pressure element, such as ~~particularly~~ a ring disk, ~~preferably~~ acts upon the centering ring from above or below, which presses the centering ring onto the ~~a~~ collar at the drum cover or at the drum bottom part. In this manner, the locking ring can exercise an axial compression force upon the centering ring made of an elastic material.

[00013] ~~Additional advantageous further developments are indicated in the subclaims.~~(Canceled)

[00014] ~~In the following, the invention will be described in detail by means of embodiments with reference to the drawing.~~Other aspects of the present disclosure will become apparent from the following descriptions when considered in conjunction with the accompanying drawings.

Before Paragraph 15, please insert the following:

BRIEF DESCRIPTION OF THE DRAWINGS

[00015] Figure 1 is a sectional view of ~~the~~ a contact area between ~~the~~ a bottom part and ~~the~~ a drum cover of a centrifugal drum of a separator~~;~~, according to the principles of the present disclosure.

[00016] Figure 2 is a sectional view of a centering ring, shown before and after ~~the~~ installation.

Before Paragraph 17, please insert the following:

DETAILED DESCRIPTION OF THE DRAWINGS

[00017] The following description relates to separators with a vertical axis of rotation. Terms ~~like~~ such as "above" or "below" relate to this type of installation situation or separator configuration, but should not be understood to be limiting.

[00018] ~~The c~~Centrifugal drum 1 of ~~the~~ a separator, as shown in Figure 1, has a ~~with a preferably~~ vertical axis of rotation. The drum 1 has a bottom part 2, and, in an ~~whose~~

upper circumferential area, drum 1 has a drum cover 3 or a drum top part that engages the drum bottom part 2.

[00019] In ~~its~~an upper circumferential area, illustrated in Figure 1, the drum bottom part 2 ~~is further developed in~~ includes a ring shape or cylindrical shape or upper ring section 6 which lies above solids discharge openings 4. The remaining shaping of the drum bottom part 2 ~~is arbitrary; that is,~~ in ~~the~~ a downward direction, as seen in Figure 1, ~~the drum bottom part 2~~ may, for example, have a conical or cylindrical ~~("can-type")~~ construction.

[00020] An inner collar 7 is molded to ~~the~~an inner circumference of the upper ring section 6 of the drum bottom part 2. A correspondingly complementarily shaped collar 8 on ~~the~~an outer circumference of a lower ring section 9 of the drum cover 3, which otherwise is conical at least in sections in ~~the~~an upward direction, rests on this collar 7.

[00021] ~~The~~A locking of the drum cover 3 on the drum bottom part 2 takes place by ~~means of~~ a locking ring 10 which has an external thread 11, by ~~means of~~ which it is screwed from above into an internal thread 12 of the drum bottom part 2~~,~~. ~~and which, a~~ Among other things, the locking ring 10 has the purpose of fixing the drum cover 3 in the axial direction.

[00022] Above the outer collar 8, at the drum cover 3, a centering ring 13 is arranged at ~~the~~an outer circumference of the drum cover 3.

[00023] ~~This particularly advantageous~~ The centering ring 13, which ~~should be~~ is stressed, ~~in comparison to the state of the art, consists of~~ includes an elastically deformable material, such as ~~particularly of~~ rubber. It is deformed or pretensioned by axial force or pressure. This takes place in that the locking ring 6 presses from above by way of a pressure element or ring disk 14 onto the centering ring 13. The centering ring 13, ~~so that the latter is situated,~~ while being compressed~~,~~ in an elastic and quasi ~~"~~pretensioned~~"~~ manner between the drum bottom part 2 and the drum cover 3 ~~and, in this fashion, not only reliably~~ seals off ~~the~~a gap G ~~between these elements~~ of ~~the~~ width b~~, but~~ between the drum bottom part 2 and drum cover 3. The centering ring 13 also braces the drum cover 3 and the drum bottom part 2 with respect to one another in ~~the~~ a radial direction~~, and thus~~ seals them off ~~the latter~~ relative to one another and centers them relative to one another.

[00024] ~~In this case, t~~The centering ring 13 is dimensioned and is acted upon by pressure force such that ~~this effect~~ the sealing and centering is maintained also in ~~the~~ an operation

up to the highest rotational speeds of the separator, ~~so that~~ thus the drum bottom part 2 and the drum cover 3 are still centered relative to one another and sealed off also in this operating condition despite their possible different expansion behavior.

[00025] ~~Here, the~~The ring disk 14 is dimensioned such that, on the one hand, it almost completely covers the gap G in ~~the~~ an upward direction and, on the other hand, rests on ~~another~~ a collar-type step 15 of the drum bottom part 2 in ~~the~~ an inward direction.

[00026] By dimensioning the width b and ~~the~~ a height h of the space or the gap G for the centering ring 13 and by dimensioning and selecting the material of the centering ring 13, ~~the~~ a radial spring effect of the centering ring 13 is adjusted such that ~~the~~ a desired effect is achieved or that the centering and sealing ~~effect in the operation~~ is maintained to the maximal rotational speed of the separator. As an example, Figure 2 illustrates the deformation of the centering ring 13 during ~~the~~ an installation. A solid line around centering ring 13 represents pre-installation and a dotted line represents post-installation ~~(previously: solid line; afterwards,~~ during ~~the~~ an operation, which may be at a maximal rotational speed and with an expansion of the drum bottom part 2~~: broken line~~). The centering ring 13 is therefore deformed ~~at the~~ to level ~~H~~h. For this ~~reason,~~ reason and because of its pretensioning and its spring ~~effect~~ effect, when the drum bottom part 2 expands, the centering ring 13 can expand and widen beyond the width ~~B~~b, so that it carries out its sealing and centering function over the entire rotational speed range of the separator.

Please add the following new Paragraph:

[00027] Although the present disclosure has been described and illustrated in detail, it is to be clearly understood that this is done by way of illustration and example only and is not to be taken by way of limitation. The scope of the present disclosure is to be limited only by the terms of the appended claims.

~~List of Reference Symbols~~

~~Centrifugal drum 1~~

~~drum bottom part 2~~

~~drum cover 3~~

~~solids discharge openings 4~~

~~upper ring section 6~~

~~inner collar 7~~

~~outer collar 8~~

~~lower ring section 9~~

~~locking ring 10~~

~~external thread 11~~

~~internal thread 12~~

~~centering ring 13~~

~~ring disk 14~~

~~step 15~~

~~width b~~

~~height h~~

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